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THE

YORKSHIRE CARBONIFEROUS FLORA

BY

ROBERT KIDSTON, F.R.S.E., F.G.S.

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THE YORKSHIRE CARBONIFEROUS FLORA.

FIFTH REPORT.

ON BEHALF OF THE YORKSHIRE FOSSIL FLORA COMMITTEE, FOR 1895.

BY ROBERT KIDSTON, F.R.S.E., F.G.S.

Since the Fourth Report was laid before the members of the Yorkshire Naturalists' Union in 1892, very little has been done in carrying out the object for which this Committee was founded, and the only specimens received for examination have been collected by Mr. W. Hemingway, Barnsley, and Mr. T. Saltonstall, Sowerby.

Those collected by Mr. Saltonstall were from the Millstone Grit, and as there are so few records from these rocks they are peculiarly interesting, though they contain no new plants to the Yorkshire Coal Field. As a rule specimens from the Millstone Grit are very badly preserved, and seldom admit of a specific identification. Those collected by Mr. Saltonstall were in many cases preserved in shale, and though fragmentary, a number of the fossils admitted of a satisfactory determination, and from them several species are added to the flora of the Millstone Grit.

The Flora of the Millstone Grit is essentially the same as that of the Lower Coal Measures, and palæontologically, the Millstone Grit and Lower Coal Measures form one series, though the physical conditions under which they were formed must have been very different.

Between the basement beds of the Millstone Grit and the uppermost beds of the Lower Carboniferous there must be a great gap in time, which in Britain appears to be unrepresented by any rock, for the flora of the underlying Lower Carboniferous is totally different from that of the Upper Carboniferous, of which the Millstone Grit is its lowest member.

The specimens submitted to me by Mr. Hemingway were all from the Middle Coal Measures. These have afforded a number of records from new localities and new horizons, and have further added several species to our list which were not previously known to occur in Yorkshire.

The new Yorkshire records are :—

Calamitina (*Calamites*) *extensa* Weiss.
Eucalamites (*Calamites*) *britannicus* Weiss.
Calamostachys nana Weiss (?).
Megaphyton anomalum Grand'Eury.
Lepidodendron rimosum Sternb.
Lepidostrobus triangulare Zeiller.
Stigmaria eveni Lx.
Artisia approximata Brongt.

Of these, *Megaphyton anomalum* and *Calamitina extensa* are new to Britain.

In conclusion I have only to express the hope that Yorkshire Geologists will in future take a greater interest in the work of the Fossil Flora Committee, for from many parts of the Coal Field there are very few or no records at all, and this is scarcely a creditable state of matters in a county which has so many societies devoted to the study of geology and palæontology.

The Committee express their thanks to Mr. W. Hemingway and Mr. T. Saltonstall for their valuable assistance in furthering the objects the Committee have in view.

SYNOPSIS OF ADDITIONAL SPECIES AND LOCALITIES.

CALAMARIÆ.

CALAMITES Suckow.

GROUP I.—CALAMITINA Weiss.

Calamitina varians Sternb. sp.

Calamitina varians. Ante, pp. 16, 66, 85, 99.

MIDDLE COAL MEASURES.

Additional locality.

HOR.—*Barnsley Thick Coal.* LOC.—East Gawber Colliery near Barnsley (W. Hemingway).

Calamitina extensa Weiss.

1884. *Calamites* (*Calamitina*) *extensus* Weiss. Steinkohlen-Calamarien, vol. ii., p. 87, pl. iv., fig. 2.

MIDDLE COAL MEASURES.

HOR.—*Woolley Edge Rock.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

NOTE.—This is the first record of the species in Britain.

Calamitina undulata Sternb. sp.

Calamitina undulata: Ante, pp. 20, 68, 85, 99.

Additional localities.

MIDDLE COAL MEASURES.

HOR.—"*Flockton Old Hards.*" LOC.—Flockton near Huddersfield (W. Hemingway).

HOR.—*Woolley Edge Rock.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

HOR.—*Top Beamshaw Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

HOR.—*30 yards below Swallow Wood Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

Calamitina verticillata L. & H. sp.

Calamitina verticillata, Ante, p. 17.

Additional locality.

MIDDLE COAL MEASURES.

HOR.—*Barnsley Thick Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

GROUP II.—EUCALAMITES WEISS.

Eucalamites ramosus Artis sp.

Eucalamites ramosus. Ante, pp. 17, 67, 85.

Additional localities.

MIDDLE COAL MEASURES.

HOR.— *Woolley Edge Rock.* LOC.— Oaks Colliery, Barnsley (W. Hemingway).

HOR.— *Swallow Wood Coal.* LOC.— Oaks Colliery, Barnsley (W. Hemingway).

HOR.—*Barnsley Thick Coal, and twenty yards below the Swallow Wood Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

NOTE.—Among the specimens are stems, foliage branches, and cones. The last mentioned being the *Calamostachys ramosa* Weiss.

Eucalamites britannicus Weiss.

1888. *Eucalamites (Calamites) britannicus* Weiss. Ann. & Mag. Nat. Hist., ser. 6, vol. ii., p. 131, pl. vii.

MIDDLE COAL MEASURES.

HOR.—*Barnsley Thick Coal.* LOC.—Monckton Main Colliery, near Barnsley (W. Hemingway).

NOTE.—*Eucalamites britannicus* is a new record for the Yorkshire Coal Field.

GROUP III.—STYLOCALAMITES.

Stylocalamites suckowii Brongt. sp.

Stylocalamites (Calamites) suckowii. Ante, pp. 19, 67, 85, 100.

Additional localities.

MIDDLE COAL MEASURES.

HOR.—*Barnsley Thick Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

MILLSTONE GRIT.

HOR.—*Third Grit.* LOC.—Sowerby, near Sowerby Bridge (T. Saltonstall).

Stylocalamites cistii Brongt.

Stylocalamites (Calamites) cistii. Ante, pp. 21, 68, 85.

Additional localities.

MIDDLE COAL MEASURES.

HOR.—*Barnsley Thick Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

HOR.—*About 50 yards above the Barnsley Thick Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

CALAMOCLADUS SCHIMPER.

Calamocladus equisetiformis Schl. sp.

Calamocladus equisetiformis. Ante, pp. 22, 68, 86.

Additional locality.

MIDDLE COAL MEASURES.

Hor.—*Swallow Wood Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

Calamocladus longifolius Sternb. sp.

Calamocladus longifolius. Ante, p. 68.

Additional locality.

MIDDLE COAL MEASURES.

HOR.—*Woolley Edge Rock.* LOC. — Oaks Colliery, Barnsley (W. Hemingway).

Calamocladus charæformis Sternb. sp.

Calamocladus charæformis. Ante, pp. 22, 86, 101.

Calamocladus roehli. Ante, p. 22.

Additional locality.

MIDDLE COAL MEASURES.

HOR.—'*Flockton Old Hards.*' LOC.—Flockton near Huddersfield (W. Hemingway).

CALAMOSTACHYS SCHIMPER.

Calamostachys typica Schimper.

Calamostachys typica. Ante, p. 23.

Additional locality.

MIDDLE COAL MEASURES.

Hor.—*Woolley Edge Rock.* Loc.—Oaks Colliery, Barnsley (W. Hemingway).

Calamostachys *cf.* **nana** Weiss.

1884. *Calamostachys (?) nana* Weiss, Steinkohlen-Calamarien, vol. ii., p. 175, pl. xxi., fig. 10.

MIDDLE COAL MEASURES.

Hor.—*Twenty yards below Swallow Wood Coal.* Loc.—Oaks Colliery, Barnsley (W. Hemingway).

NOTE.—*Calamostachys (?) nana* is an extremely minute cone and the single specimen found is scarcely sufficiently perfect for a satisfactory determination of the species.

PALÆOSTACHYA WEISS.

Palæostachya pedunculata Will.

Palæostachya pedunculata. Ante, p. 24.

Additional locality.

MIDDLE COAL MEASURES.

Hor.—*Woolley Edge Rock.* Loc.—Oaks Colliery, Barnsley (W. Hemingway).

ANNULARIA STERNB.

Annularia microphylla Sauveur.

Annularia microphylla. Ante, p. 25.

MIDDLE COAL MEASURES.

Hor.—*Woolley Edge Rock.* Loc.—Oaks Colliery, Barnsley (W. Hemingway).

NOTE.—Delete the locality, 'Brierley Tunnel, near Barnsley. Hor.—*Houghton Common Rock*,' given in the First Report, page 25.

Annularia sphenophylloides Zenker sp.

Aunularia sphenophylloides. Ante, p. 69.

Additional locality.

MIDDLE COAL MEASURES.

HOR.—*Houghton Common Rock.* LOC.—Brierley Tunnel, near Barnsley (W. Hemingway).

FILICACEÆ.

SPHENOPTERIS Brongt.

Sphenopteris obtusiloba Brongt.

Sphenopteris obtusiloba. Ante, pp. 28, 70.

Additional locality.

Middle Coal Measures.

Hor.—*Woolley Edge Rock.* Loc.—Oaks Colliery, Barnsley (W. Hemingway).

RENAULTIA Zeiller.

Renaultia footneri Marrat. sp.

Renaultia footneri. Ante, pp. 31, 71, 104.

Additional localities.

Middle Coal Measures.

Hor.—*Swallow Wood Coal.* Loc.—Oaks Colliery, Barnsley (W. Hemingway).

Hor.—*Barnsley Thick Coal.* Loc.—Acton Hall Colliery, near Pontefract (W. Hemingway).

CROSSOTHECA Zeiller.

Crossotheca schatzlarensis Stur. sp.

Crossotheca schatzlarensis. Ante, pp. 33, 72, 105.

Additional locality.

Middle Coal Measures.

Hor.—*Top Beamshaw Coal.* Loc.—Oaks Colliery, Barnsley (W. Hemingway).

MARIOPTERIS Zeiller.

Mariopteris muricata Schl. sp.

Mariopteris muricata. Ante, pp. 33, 72, 89, 106.

Additional localities.

Middle Coal Measures.

Hor.—*Woolley Edge Rock.* Loc.—Oaks Colliery, Barnsley (W. Hemingway).

Hor.—*Swallow Wood Coal.* Loc.—Oaks Colliery, Barnsley (W. Hemingway).

Hor.—*50 yards, 30 yards and 20 yards below Swallow Wood Coal.* Loc.—Oaks Colliery, Barnsley (W. Hemingway).

MILLSTONE GRIT.

Hor.—*Fourth Member of the Third Millstone Grit.* Loc.—Sowerby, near Sowerby Bridge (T. Saltonstall).

ALETHOPTERIS STERNB.

Alethopteris lonchitica Schl. sp.

Alethopteris lonchitica. Ante, pp. 37, 73, 89, 106.

Additional localities.

MIDDLE COAL MEASURES.

Hor.—*Black Bed Coal.* Loc.—Darklane Colliery, Ravensthorpe (W. Hemingway).

Hor.—*Woolley Edge Rock.* Loc.—Oaks Colliery, Barnsley (W. Hemingway).

Hor.—*30 yards and 20 yards below Swallow Wood Coal.* Loc.—Oaks Colliery, Barnsley (W. Hemingway).

MILLSTONE GRIT.

Hor.—*Fourth Member of the Third Millstone Grit.* Loc.—Sowerby, near Sowerby Bridge (T. Saltonstall).

Neuropteris heterophylla Brongt.

Neuropteris heterophylla. Ante, pp. 40, 74, 90, 107.

Additional localities.

MIDDLE COAL MEASURES.

HOR.—*'Flockton Old Hards.'* LOC.—Flockton, near Huddersfield (W. Hemingway).

HOR.—*Top Beamshaw Seam.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

HOR.—*Swallow Wood Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

HOR.—*Barnsley Thick Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

HOR.—*50 yards below Swallow Wood Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

MILLSTONE GRIT.

HOR.—*Fourth member of the Third Millstone Grit.* LOC.—Sowerby, near Sowerby Bridge (T. Saltonstall).

Neuropteris gigantea Sternb.

Neuropteris gigantea. Ante, pp. 41, 75, 91, 108.

Additional localities.

MIDDLE COAL MEASURES.

HOR.—*Woolley Edge Rock.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

HOR.—*Top Beamshaw Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

HOR.— LOC.—Haigh Moor Colliery, Barnsley (W. Hemingway).

MILLSTONE GRIT.

HOR.—*Fourth member of the Third Millstone Grit.* LOC.—Sowerby, near Sowerby Bridge (T. Saltonstall).

Neuropteris scheuchzeri Hoffm.

Neuropteris scheuchzeri. Ante, p. 42.

Additional locality.

MIDDLE COAL MEASURES.

HOR.—*Woolley Edge Rock.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

Neuropteris acuminata Schl. sp.

Neuropteris acuminata. Ante, pp. 91, 108.

Additional locality.

MIDDLE COAL MEASURES.

HOR.—*Swallow Wood Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

MEGAPHYTON ARTIS.

Megaphyton anomalum Grand'Eury.

1890. *Megaphyton anomalum* Grand'Eury. Geol. et Palèont. du Bassin Houil. du Gard, p. 281, pl. xviii., fig. 3.

MIDDLE COAL MEASURES.

HOR.—*Barnsley Thick Coal.* LOC.—Woolley Colliery, Darton, near Barnsley (W. Hemingway).

REMARKS.—Of this species Mr. Hemingway has found a very fine example, which proves the plant to have been

correctly referred to *Megaphyton* by M. Grand'Eury, whose original specimen, owing to its fragmentary nature, left some doubt as to whether the stem belonged to *Megaphyton* or *Caulopteris*.

LYCOPODIACEÆ.

Lepidodendron aculeatum Sternb.

Lepidodendron aculeatum. Ante, pp. 45, 76, 91, 111.

Additional locality.

MILLSTONE GRIT.

HOR.—*Third Millstone Grit.* LOC.—Sowerby, near Sowerby Bridge (T. Saltonstall).

Lepidodendron haidingeri Ett.

Lepidodendron haidingeri. Ante, p. 47.

Additional locality.

MIDDLE COAL MEASURES.

HOR.—*20 yards below Swallow Wood Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

Lepidodendron rimosum Sternb.

1820. *Lepidodendron rimosum* Sternb., Ess. Flore Monde Prim., fasc. i., pp. 22 and 25, pl. x., fig. i., fasc. iv., p. xi.

1828. *Lepidodendron rimosum* Brongt., Prodrome, p. 86.

1848. *Lepidodendron rimosum* Sauveur, Végét. Foss. Terr. Houil. Belgique, pl. lxii., fig 1.

1869. *Lepidodendron rimosum* Roehl, Foss. Flora d. Steink.-Form. Westph., p. 132, pl. viii., fig. 1.

1870. *Lepidodendron rimosum* Schimper, Traité d. Paléont. Végét., vol. ii., p. 33, pl. lx., fig. 8.

1880. *Lepidodendron rimosum* Lesqx., Coal Flora, vol. ii., p. 392, pl. xliv., fig. 11.

1882. *Lepidodendron rimosum* Weiss, Aus. d. Steink. (2nd Ed.), p. 8. pl. iv., fig. 28.

1882. *Lepidodendron rimosum* Renault, Cours. d. Botan. Foss., vol. ii., p. 15, pl. v., figs. 6—7.

1886. *Lepidodendron rimosum* Zeiller, Flore Foss. Bassin Houil. d. Valen., pl. lxvii., figs. 4—5 ; Text, p. 449, 1888.

1838. *Sagenaria rimosa* Presl in Sternb., Vers., ii., fasc. 7—8, p. 180, pl. lxviii., fig. 15.

1855. *Sagenaria rimosa* Geintz (*in part*), Vers. d. Steinkf. in Sachsen, p. 35, pl. iii., fig. 13.

1860. *Sagenaria rimosa* Eichwald (*in part*), Lethæa Rossica, vol. i., p. 125, pl. vii., fig. 7.

1875. *Sagenaria rimosa* Feistm. (*in part*), Vers. d. Böhm. Ablag., Abth. ii., p. 36, pl. xix., fig. 1.

1848. *Lepidodendron dissitum* Sauveur, Végét. Foss. Terr. Houil. Belgique, pl. lxi., fig. 6.

1860. *Lepidodendron dicrocheilus* Wood, Proc. Acad. Nat. Sc. Phil., p. 239, pl. vi., fig. 1.

1865. ? *Lepidodendron plicatum* Dawson, Quart. Journ. Geol. Soc., vol. xxii., p. 162., pl. ix., fig. 38.

1869. *Lepidodendron dicrocheilum* Wood, Trans. Amer. Phil. Soc., vol. xiii., p. 346, pl. ix., fig. 6.

MIDDLE COAL MEASURES.

Hor.—*20 yards below Swallow Wood Coal.* Loc.—Oaks Colliery, Barnsley (W. Hemingway).

REMARKS.—This species is rare in Britain, and has not previously been recorded for Yorkshire.

LEPIDOPHLOIOS STERNB.

Lepidophloios acerosus L. & H. sp.

Lepidophloios acerosus. Ante, pp. 49, 77.

Additional localities.

MIDDLE COAL MEASURES.

HOR.—*Barnsley Thick Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

HOR.—*20 yards below Swallow Wood Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

HALONIA L. & H.

Halonia tortuosa L. & H.

1833. *Halonia (?) tortuosa* L. & H., Fossil Flora, vol. ii., pl. lxxxv.

1837. *Halonia regularis* L. & H., Fossil Flora, vol. iii., pl. ccxxviii.

Halonia. Ante, p. 50.

Additional locality.

MIDDLE COAL MEASURES.

HOR.—*Woolley Edge Rock.* LOC.—Smithies, near Barnsley (W. Hemingway).

LEPIDOSTROBUS BRONGT.

Lepidostrobus lanceolatus L. & H. sp.

Lepidostrobus lanceolatus. Ante, pp. 50, 77, 112.

Additional localities.

MIDDLE COAL MEASURES.

HOR.—*Top Beamshaw Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

HOR.—*30 yards below Swallow Wood Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

Lepidostrobus anthemis König.

Lepidostrobus anthemis. Ante, pp. 51, 92.

Additional locality.

MIDDLE COAL MEASURES.

HOR.—*Stanley Main Coal.* LOC.—Walton, near Wakefield (W. Hemingway).

Lepidostrobus geinitzii Schimper.

Lepidostrobus geinitzii. Ante, pp. 52, 112.

Additional locality.

MIDDLE COAL MEASURES.

HOR.—*30 yards below Swallow Wood Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

LEPIDOPHYLLUM BRONGT.

Lepidophyllum triangulare Zeiller.

1886. *Lepidophyllum triangulare* Zeiller. Flore Foss. Bassin Houil. d. Valen., p. 508, pl. lxxvii., figs 4-8 (Text 1888).

MIDDLE COAL MEASURES.

HOR.—*Barnsley Thick Coal.* LOC.—East Gawber Colliery, near Barnsley (W. Hemingway).

NOTE.—These little leaves or bracts appear to be closely allied to the *Lepidostrobus anthemis* König sp.

BOTHRODENDRON L. & H.

Bothrodendron minutifolium Boulay sp.

Bothrodendron minutifolium. Ante, pp. 52, 77, 112.

Additional localities.

MIDDLE COAL MEASURES.

HOR.—*Top Beamshaw Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

HOR.—*30 yards below Swallow Wood Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

SIGILLARIA BRONGT.

Sigillaria mamillaris Brongt.

Sigillaria mamillaris. Ante, pp. 54, 78.

Additional locality.

MIDDLE COAL MEASURES.

HOR.—*'Flockton Old Hards.'* LOC.—Flockton, near Huddersfield (W. Hemingway).

Sigillaria scutellata Brongt.

Sigillaria scutellata. Ante, p. 55.

Additional localities.

MIDDLE COAL MEASURES.

HOR.—*Parkgate Coal.* LOC.—Stainborough, near Barnsley (W. Hemingway).

MILLSTONE GRIT.

HOR.—*Third Millstone Grit.* LOC.—Sowerby, near Sowerby Bridge (T. Saltonstall).

Sigillaria elongata Brongt.

Sigillaria elongata. Ante, p. 114.

Additional locality.

MIDDLE COAL MEASURES.

HOR.—*'Flockton Old Hards.'* LOC.—Flockton, near Huddersfield (W. Hemingway).

Sigillaria tessellata Brongt.

Sigillaria tessellata. Ante, pp. 57, 79, 96.

Additional localities.

MIDDLE COAL MEASURES.

HOR.—*Kent Thick Coal.* LOC.—Wharncliffe Wood Moor Colliery, Carlton, near Barnsley (W. Hemingway).

HOR.—*30 yards below Swallow Wood Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

MILLSTONE GRIT.

HOR.—*Third Millstone Grit.* LOC.—Sowerby, near Sowerby Bridge (T. Saltonstall).

STIGMARIA BRONGT.

Stigmaria ficoides Sternb. sp.

Stigmaria ficoides. Ante, p. 58.

Additional localities.

MIDDLE COAL MEASURES.

HOR.—*Milton Field Coal.* LOC.—Oaks Colliery, Barnsley (*var.*) (W. Hemingway).

MILLSTONE GRIT.

Hor.—*Third Millstone Grit.* Loc.—Sowerby, near Sowerby Bridge (T. Saltonstall).

Stigmaria eveni Lesqx.

1866. *Stigmaria eveni* Lesqx., Geol. Survey of Illin., vol. ii., p. 448, pl. xxxix., fig. 9.

1879. *Stigmaria eveni* Lesqx., Atlas to the Coal Flora, p. 16, pl. lxxv., fig. 1.

1886. *Stigmaria eveni*, Zeiller, Flore Foss. Bassin Houil. d. Valen., p. 618, pl. xci., fig. 7.

1890. *Stigmaria eveni*, Grand'Eury, Bassin Houil. du Gard, pl. xiii., fig. 13.

1880. *Stigmarioides eveni* Lesqx., Coal Flora, p. 333.

1890. *Stigmariopsis eveni* Grand'Eury, Bassin Houil. du Gard, p. 243.

MIDDLE COAL MEASURES.

Hor.—

Loc.—Borehole near Doncaster (W. Hemingway).

NOTE.—This is a new record to the Yorkshire Coal Field.

SPHENOPHYLLEÆ.

Sphenophyllum cuneifolium Sternb. sp.

Sphenophyllum cuneifolium. Ante, pp. 25, 69, 87, 116.

Additional localities.

MIDDLE COAL MEASURES.

Hor.—'*Flockton Old Hards.*' Loc.—Flockton near Huddersfield (W. Hemingway).

Hor.—*20 yards below Swallow Wood Coal.* Loc.—Oaks Colliery, Barnsley (W. Hemingway).

Var. saxifragæfolium.

Var. saxifragæfolium. Ante, pp. 26, 69.

Additional locality.

MIDDLE COAL MEASURES.

HOR.—*Swallow Wood Coal.* Loc. Oaks Colliery, Barnsley (W. Hemingway).

Sphenophyllum majus Bronn.

Sphenophyllum majus. Ante, pp. 26, 70.

Additional locality.

MIDDLE COAL MEASURES.

HOR.—*Swallow Wood Coal.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

Sphenophyllum myriophyllum Crépin.

Sphenophyllum myriophyllum. Ante, p. 27.

Additional locality.

MIDDLE COAL MEASURES.

HOR.—*Woolley Edge Rock.* LOC.—Oaks Colliery, Barnsley (W. Hemingway).

CORDAITEÆ.

CORDAITES UNGER.

Cordaites principalis Germar sp.

Cordaites principalis. Ante, pp. 58, 80, 118.

Additional locality.

MILLSTONE GRIT.

HOR.—*Second Member of Millstone Grit.* LOC.—Sowerby near Sowerby Bridge (T. Saltonstall).

ARTISIA STERNB.

Artisia approximata Brongt. sp.

1838. *Artisia approximata* Corda in Sternb., Vers. ii., fasc. 7-8, p. xxii., pl. liii., figs. 1-6.

1886. *Artisia approximata* Zeiller, Flore Foss. Bassin Houil. d. Valen., p. 634, pl. xciv., figs. 2-3.

1890. *Artisia approximata* Ren. & Zeiller, Flore Foss. Terr. Houil. d. Comentry, p. 581, pl. lxv., fig. 4.

1828. *Sternbergia approximata* Brongt., Prodrome, p. 137.

1837. *Sternbergia approximata* L. & H., Fossil Flora, vol. iii., pls. cxxiv—cxxv.

1838. *Artisia transversa* Presl. (*not* Artis) in Sternb., Vers. ii., p. 192, pl. liii., figs. 7—9.

1869. *Artisia transversa* Roehl. (*not* Artis) Foss. Flora d. Steink.-Form. Westph., p. 148, pl. iv., fig. 8.

1876. *Artisia transversa* Roemer (*not* Artis) Lethæa Geog., vol. i., p. 242, pl. lv., fig. 3.

1848. *Sternbergia transversa* Sauveur (*not* Artis) Végét. Foss. de. Terr. Houil. Belgique, pl. lxix., fig. 1.

1848. *Sternbergia minor* Sauveur ibid., pl. lxix., fig. 2.

MILLSTONE GRIT.

Hor.—*Third Millstone Grit.* Loc.—Sowerby, near Sowerby Bridge (T. Saltonstall).

CARDIOCARPUS BRONGT.

Cardiocarpus gutbieri Geinitz sp.

Cardiocarpus gutbieri. Ante, p. 60.

Additional locality.

MIDDLE COAL MEASURES.

Hor.—*20 yards below Swallow Wood Coal.* Loc.—Oaks Colliery, Barnsley (W. Hemingway).

RHABDOCARPUS Göpp. & Berger.

Rhabdocarpus elongatus Kidston.

Rhabdocarpus elongatus. Ante, pp. 63, 82, 121.

Additional locality.

Middle Coal Measures.

Hor.—*30 yards below Swallow Wood Coal.* Loc.—Oaks Colliery, Barnsley (W. Hemingway).

CARPOLITHUS Sternb.

Carpolithus bivalvis Göpp & Berger.

Carpolithus bivalvis. Ante, pp. 64, 96, 122.

Additional locality.

Middle Coal Measures.

Hor.—*Swallow Wood Coal.* Loc.—Oaks Colliery, Barnsley (W. Hemingway).

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